

What is Claimed is:

1. A messaging system, comprising:
a client device having stored therein a client application, which is adapted
to be executed by said client device;

5 a server having stored therein a server application, which is adapted to be
executed by said server;

a plurality of wireless networks, each of which is adapted to:
communicate messages between said client device and said server;

and

10 support one or more wireless network protocols;

a protocol gateway encapsulating a fundamental network protocol, which
underlies each of said one or more wireless network protocols; and

means for communicating a message between said client application and
said server application, over a selected wireless network protocol through said protocol
gateway, independent of said selected wireless network protocol.

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20 2. The messaging system according to claim 1, further comprising at least
one message router for routing said message between said protocol gateway and said
server.

3. The messaging system according to claim 2, wherein said message router
further comprises means for authenticating an origin of said message.

25 4. The messaging system according to claim 3, wherein said authenticating
means authenticates said origin before said message is routed by said message router.

5. The messaging system according to claim 3, further comprising a database
accessible by said message router and adapted to store information relating to routing and
authentication of said message.

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6. The messaging system according to claim 1, further comprising an HTTP proxy server, which is adapted to receive a plurality of HTTP requests from said client device, send each said request over the Internet to said server, and transmit a response corresponding thereto from said server to said client device.

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7. The messaging system according to claim 6, wherein said HTTP proxy server is adapted to support one or more HTTP protocols.

8. The messaging system according to claim 6, wherein said HTTP proxy server comprises:

means for creating a TCP/IP socket connection; and
means for managing said TCP/IP socket connection.

9. The messaging system according to claim 1, further comprising an SNMP manager.

10. The messaging system according to claim 1, further comprising:
means for defining a maximum segment size;
means for determining if said message exceeds said maximum segment size; and
means for segmenting said message into a plurality of message segments, none of which exceeds said maximum segment size.

11. The messaging system according to claim 1, further comprising means for supporting a message retry in each of said wireless network protocols.

12. The messaging system according to claim 1, further comprising means for supporting a message ACK/NACK service in each of said wireless network protocols.

13. A method of communicating a message between a client device having stored therein a client application adapted to be executed by the client device, and a

server having stored therein a server application adapted to be executed by the server, over a plurality of wireless networks, each of which is adapted to support one or more wireless network protocols, said method comprising the steps of:

5 providing a protocol gateway;

within said protocol gateway, encapsulating a fundamental network protocol, which underlies each of said one or more wireless network protocols; and
communicating the message between the client application and the server application, over a selected wireless network protocol through said protocol gateway, independent of said selected wireless network protocol.

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14. The method according to claim 13, further comprising the step of providing at least one message router for routing the message between said protocol gateway and the server.

15 15. The method according to claim 14, further comprising the step of authenticating an origin of the message.

16. The method according to claim 15, wherein said authenticating step is performed before the message is routed by said message router.

20 17. The method according to claim 15, further comprising the steps of:
providing a database, which is accessible by said message router; and
storing in said database information relating to routing and authentication of the message.

25 18. The method according to claim 13, further comprising the steps of:
providing an HTTP proxy server, which is adapted to receive a plurality of HTTP requests from the client device;
sending each said request received by said HTTP proxy server over the Internet to the server; and

transmitting a response corresponding to each said request from the server through said HTTP proxy server to the client device.

19. The method according to claim 18, further comprising the step of
5 adapting said HTTP proxy server to support one or more HTTP protocols.

20. The method according to claim 18, further comprising the steps of:
creating a TCP/IP socket connection with said HTTP proxy server; and
managing said TCP/IP socket connection with said HTTP proxy server.

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21. The method according to claim 13, further comprising the steps of:
defining a maximum segment size;
determining if said message exceeds said maximum segment size; and
segmenting said message into a plurality of message segments, none of
15 which exceeds said maximum segment size.

22. The method according to claim 13, further comprising the step of supporting a message retry in each of said wireless network protocols.

20 23. The method according to claim 13, further comprising the step of supporting a message ACK/NACK service in each of said wireless network protocols.

25 24. In a client-server environment including a client device having stored therein a client application, which is adapted to be executed by the client device, a server having stored therein a server application, which is adapted to be executed by the server, and a plurality of wireless networks, each of which is adapted to communicate messages between the client device and the server, and support one or more wireless network protocols, the improvement comprising a computer-readable medium, which includes:

30 a first code segment defining a fundamental network protocol, which underlies each of said one or more wireless network protocols;

a second code segment encapsulating said fundamental network protocol within a protocol gateway;

5 a third code segment for communicating a message between the client application and the server application, over a selected wireless network protocol through said protocol gateway, independent of said selected wireless network protocol.

25. The computer-readable medium according to claim 24, further comprising a fourth code segment for routing said message between said protocol gateway and the server.

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26. The computer-readable medium according to claim 25, further comprising a fifth code segment for authenticating an origin of said message.

15 27. The computer-readable medium according to claim 26, wherein said fifth code segment is adapted to authenticate said origin before said message is routed by said fourth code segment.

20 28. The computer-readable medium according to claim 26, further comprising a sixth code segment for defining a database, which is accessible by the execution of said fourth code segment and adapted to store information relating to routing and authentication of said message.

25 29. The computer-readable medium according to claim 24, further comprising a seventh code segment for supporting one or more HTTP protocols.

30 30. The computer-readable medium according to claim 29, further comprising:

an eighth code segment for creating a TCP/IP socket connection; and
a ninth code segment for managing said TCP/IP socket connection.

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31. The computer-readable medium according to claim 24, further comprising:
- a tenth code segment for defining a maximum segment size;
- an eleventh code segment for determining if said message exceeds said
- 5 maximum segment size; and
- a twelfth code segment for segmenting said message into a plurality of message segments, none of which exceeds said maximum segment size.
32. A method of deploying content from one of a plurality of servers, through
- 10 a message router and over a wireless network to a client application, which is running on one or more of a plurality of client devices, comprising the steps of:
- creating, at the client device, an inbound message including a message key;
- sending said inbound message from the client device;
- accepting said inbound message at the message router;
- forwarding said inbound message to a selected one of the plurality of servers based on said message key.
33. The method according to claim 32, further comprising the steps of:
- 15 in said selected one of the plurality of servers, generating a responsive message;
- sending said responsive message from said selected one of the plurality of servers to the message router;
- providing a plurality of protocol gateways, each of which is based on a
- 20 communication type;
- in the message router,
- selecting one of the plurality of protocol gateways; and
- forwarding said responsive message to said selected one of the
- 25 plurality of protocol gateways;
- 30 formatting said responsive message for a selected one of said plurality of client devices; and

forwarding said formatted responsive message to the client application running on said selected one of the plurality of client devices.

34. The method according to claim 32, further comprising the step of
5 forwarding, from the server to the client application running on said selected one of the plurality of client devices, an acknowledgement that said inbound message was received by the server.

35. The method according to claim 32, further comprising the step of
10 forwarding, from the server to the client application running on said selected one of the plurality of client devices, a negative acknowledgement indicating that said inbound message was received by the server but that no server was available to process said inbound message.

15 36. In a communications system including a server, which is adapted to run a server application, a plurality of message routers, each of which is coupled to the server, a plurality of protocol gateways, each of which is coupled to each one of the plurality of message routers, and a wireless network, which is adapted to couple the server, through one or more of the plurality of message routers and one or more of the plurality of protocol gateways, to a plurality of client devices, each of which is adapted to run a client application, a method for disseminating content to the client applications, comprising the steps of:
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receiving, at the server, a request-for-content message from a selected one of the plurality of client devices

25 sending a responsive message from the server to one of the plurality of message routers;

selecting, at said one of the plurality of message routers receiving said responsive message, one of the plurality of protocol gateways based on a communication type;

30 forwarding said responsive message to said selected protocol gateway;
formatting said responsive message for said selected one of the plurality of

client devices; and

forwarding said formatted responsive message to the client application running on said selected one of the plurality of client devices.

5 37. A method of authenticating a request for service from a client application running on a client device coupled through a message router to a server, comprising the steps of:

sending a message to the message router by the client application running on the client device;

10 failing the message router's authentication;

sending a negative acknowledgement with an error code to the client application running on the client device;

composing, in the client application, a response including a user ID, a password, and a requested service type;

15 forwarding said composed response to the message router;

authenticating, with the message router, said user ID and user rights;

updating a table with said authentication;

sending an authentication response and a security token to the client application running on the client device;

20 resending, from the client device, said message with said security token to the message router;

verifying an address of the client device; and

forwarding said resent message to the server based on a message key.

25 38. A method of authenticating a request for service from a client application running on a client device coupled through a message router to a server, comprising the steps of:

from the client application, sending a message to the message router;

failing said message router's authentication;

30 sending a negative acknowledgement to said client application running on said client device with an error code;

composing a response including a user ID, a password, and a requested service type by said client application;

forwarding said composed response to said message router;

further failing said message router's authentication; and

5 sending a negative authentication response to said client application running on said client device indicating authentication failure.

39. In a communications system including a server, which is adapted to run a server application, a plurality of message routers, each of which is coupled to the server,

10 a plurality of protocol gateways, each of which is coupled to each one of the plurality of message routers, and a wireless network, which is adapted to couple the server, through one or more of the plurality of message routers and one or more of the plurality of protocol gateways, to a plurality of client devices, each of which is adapted to run a client application, a method of disseminating an unsolicited alert to a selected client application, comprising the steps of:

within the server application, generating an unsolicited alert message;

from the server, sending said unsolicited alert message to one or more of the plurality of message routers;

at the one or more of the plurality of message routers,

20 retrieving a station ID based on a customer ID, which is uniquely associated with a selected client device;

determining a communications type based on said station ID;

selecting one or more of the plurality of protocol gateways based on said determined communication type; and

25 forwarding said unsolicited alert message to said selected one or more of the plurality of protocol gateways;

in said selected one or more of the plurality of protocol gateways,

formatting said unsolicited alert message for said selected client device; and

30 forwarding said formatted unsolicited alert message to the client application running on said selected client device.